Lowball Guidance

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Abstract

Lowball guidance is the practice of firm managers issuing overly cautious guidance that is later exceeded by a wide margin at the earnings announcement. It has been the subject of debates among investors, analysts, and the media, while based only on anecdotes of a few high-profile firms. We conduct a large-sample study to develop an intuitive, empirical definition to identify and examine this practice. We assess its prevalence in a broad sample of firms and provide evidence consistent with two drivers of lowball guidance: firms' unexpectedly high growth and firms' attempt to appease sell-side analysts and institutional investors. Our results indicate that issuing overly cautious guidance likely appeals to certain types of market participants in the short term, but it is not a sustainable practice.

1. Introduction

Earnings guidance is a controversial practice. Calls to cease this practice have come from prominent investors such as Warren Buffett, CEOs including James Dimon of JPMorgan Chase, as well as some academics, because it allegedly creates unhealthy market pressure and emphasis on pursuing short-term profits (Hsieh et al. 2006; Fuller and Jensen 2010; Rapaport 2018). Yet, some CEOs and CFOs find it necessary to set reasonable market expectations, and research has shown that guidance can be beneficial in enhancing stock liquidity, reducing stock volatility, and resolving earnings uncertainty (e.g., Graham et al. 2005; Ball and Shivakumar 2008; Beyer et al. 2010; Chen et al. 2011; Balakrishnan et al. 2014; Billings et al. 2015).

Amid this debate, one particular type of guidance has received much attention—guidance that is overly cautious such that a firm can easily beat it when announcing earnings. Critics of this practice claim that firms try to fool the market into believing extremely low expectations and then beat these expectations by a wide margin to artificially boost stock prices. This practice, thus, has been labelled "lowballing" or "lowball guidance." The poster child of lowballing is Apple Inc., which for about a decade starting in the early 2000's consistently exceeded its guidance by a wide margin, and ironically, emerges as one of the largest U.S. companies today by market capitalization.

In this study, we seek to systematically analyze the practice of lowball guidance by shedding light on the following related research questions: 1) how prevalent is this practice, 2) why do firms do it, 3) when do they quit lowballing, and 4) how does it appeal to the investment community of institutional investors and sell-side analysts? These questions are of interest to firm managers who engage in or are considering this practice and to capital market participants who follow these firms, as well as to academics seeking to understand the motives behind such a

seemingly unsustainable disclosure practice. While we remain agnostic about the overall merits of the "guidance game" and acknowledge that many of the determinants and market implications of the general practice of guidance (and its many properties) have been examined in prior studies (e.g., Hutton 2005; Yang 2012; Hilary et al. 2014), we contend that lowball guidance remains an interesting issue and a subject relevant to both practitioners and researchers, and it has not been thoroughly investigated in any prior study.

Lowball guidance is a special case of management guidance, which is a common form of voluntary disclosure by public firms. Theories and empirical evidence abound in prior research on why firms provide voluntary disclosure in general and guidance in particular (e.g., Verrecchia 2001; Healy and Palepu 2001; Kothari 2001; Beyer et al. 2010). Thus, conditional on a firm's decision to provide guidance, we draw from studies on asymmetric market responses to earnings surprises as a guiding framework to better understand lowball guidance. Given the litigation risk from shareholder lawsuits associated with steep stock price declines (Skinner 1994, 1997), and that stock prices tend to decline more for earnings misses than they rise for the same level of earnings beats (Skinner and Sloan 2002), firms naturally tend to be cautious with their guidance. But the degree of caution is likely to vary over time and across firms, and we conjecture that it varies with the composition of the firm's investor base and confidence in predicting future growth. For example, firms are likely less cautious when growth is predictable and investors are largely long-term holders, while they may be overly cautious when growth is highly uncertain and investors are largely short-term investors. Therefore, under this framework, we focus on two possible explanations, mutually non-exclusive, for why some firms are overly cautious and provide lowball guidance.

First, firm managers might have genuine difficulty in forecasting next quarter's earnings because the firm's operations are uncertain or volatile, especially when coupled with exceptionally high growth in sales or profitability. As a result, guidance that was intended to be slightly cautious at issuance may turn out to be overly cautious upon the announcement of actual earnings. This scenario suggests that lowballing is unintentional and, even if it may occur over four or more consecutive quarters, is an artifact of higher-than-expected earnings growth. We refer to this as the "unexpected growth" explanation.

The second possible explanation is that firm managers deliberately provide guidance they expect their firms to exceed by a wide margin, likely in an attempt to appease existing analysts and institutional investors and to attract new ones. It is well documented that many analysts and institutional investors are fixated on whether firms achieve their quarterly earnings targets (e.g., Matsumoto 2002; Bartov et al. 2002). Thus, although there is nothing dishonest or illegal about this practice, it is intended to appease capital markets participants' desire for consistent delivery of earnings that exceed expectations. We refer to this as the "market appeasement" explanation.

Because there is no consensus definition of lowball guidance in practice or prior research, we begin our analysis by developing an empirical definition of lowball guidance, or more specifically, lowball firms. Through reading many business press articles, we recognize a number of high-profile firms that have been mentioned as having a reputation for giving lowball guidance. All of these firms have established a track record of providing quarterly earnings-per-share (EPS) guidance and then beating it by a wide margin.[1] As the director of research at First Call put it, "lowballing is a tempting thing to do because for the first three or four quarters, you

[1] We define "earnings beats" relative to firms' own guidance rather than the analyst consensus forecast, as the latter is not directly under managers' control. This design choice is based on the common notion that lowball firms *deliberately* issue guidance substantially below their expected earnings; thus, comparing actual earnings to earnings guidance is more appropriate than to analyst consensus forecast. Later in this paper, we explore how lowball guidance relates to meeting and beating analyst consensus forecasts.

look like a hero," suggesting that such a practice becomes recognized after several quarters (Lahart 1999). To capture the key features of EPS beats over consecutive quarters, we define a lowball firm as one whose reported EPS has exceeded its own guidance by at least $0.05 for at least four consecutive quarters. The choice of $0.05 is partly based on ample empirical evidence that market participants gravitate towards EPS expectations rounded to increments of five cents for various reasons and motives (Herrmann and Thomas 2005; Bamber et al. 2010; Cheong and Thomas 2011; Dechow and You 2012). Hence, a $0.05 EPS beat (at least four times) is a reasonable hurdle for our purpose; this definition identifies approximately 11 percent of our sample firms as lowball firms during our sample period of 2001-2017. Besides Apple, our definition also identifies several other well-known firms such as Netflix, LinkedIn, Qualcomm, Target, Marriott, Proctor and Gamble, and General Motors. We acknowledge that our definition is inevitably subjective, but the fact that many well-known lowball firms are identified suggests that it is a suitable one.

We conduct both cross-sectional and time-series analyses to investigate *which* firms lowball and *when* they start lowballing. We find evidence for both explanations. Compared with non-lowball firms, lowball firms tend to have higher prior sales growth, higher earnings growth, and more volatile earnings, consistent with the unexpected growth explanation. Lowball firms also tend to have higher prior analyst coverage and ownership by transient institutional investors (Bushee 1998), consistent with the market appeasement explanation. In an analysis of institutional ownership and analyst coverage subsequent to initiating lowballing, we find that ownership by transient investors increases after a firm adopts a lowball policy, consistent with transient investors being more concerned than other types of institutional investors about firms' short-term achievement of earnings expectations.

To better understand firms' decisions on lowball guidance, for the set of firms that have been identified to have lowballed for at least one episode (i.e., a minimum of four consecutive quarters), we investigate the duration of their lowball guidance practice, as well as the factors that appear to lead to an end of this practice. We find substantial variation in lowball duration, with the weighted-average at about seven to eight quarters. After that, the lowball practice typically ends when a firm either begins to exceed its guidance by only a small margin, miss its guidance (i.e., fail to meet), or stops providing guidance altogether. Consistent with the unexpected growth explanation, we find that terminations of lowball guidance are associated with contemporaneous declines in sales and earnings growth. Also consistent with the market appeasement explanation, terminations due to stoppage of providing guidance altogether are associated with contemporaneous declines in analyst coverage.

To shed further light on the lowball phenomenon, we examine how lowballing is related to meeting or beating analyst consensus forecasts. Our results indicate that lowball firms are more likely to meet or beat analyst consensus immediately after starting lowball guidance, relative to matched non-lowball firms. Then, after four quarters, lowball firms become less likely to meet or beat analyst consensus relative to non-lowball firms. Our results suggest that during the initial lowball guidance period, analysts do not fully understand that the guidance is overly cautious, and therefore, their consensus tends to be sufficiently low for firms' actual earnings to exceed. After analysts learn to adjust their forecasts higher, it becomes more difficult for lowball firms to meet or beat the analyst consensus relative to non-lowball firms.

In market return tests, we examine whether lowball firms experience higher returns than non-lowball firms. We find that returns are higher for lowball firms during the four consecutive quarters of large earnings beats, but not during the prior or subsequent 12-month periods. The

results are consistent using annual, quarterly, abnormal, or raw returns, and after controlling for the amount of earnings news within each quarter. These results suggest that there is a temporary capital market benefit to providing lowball guidance.

We conduct additional tests to ensure that our results are robust to different empirical design choices. When we alter the definition of lowball guidance to require a larger EPS beat or when the upper bound (rather than the midpoint) of guidance range is used as the benchmark, the results remain similar to our main results. The results are also slightly stronger when we match two control firms for each lowball firm, compared with one-to-one matching in the main tests.

Our study makes several contributions. First, our study sheds light on a particular form of earnings guidance practice that has been the subject of debates among investors, analysts, and the media. Much of those commentaries are based only on anecdotes from a few high-profile firms. Our study is the first to draw inferences from systematic large-sample analyses. We develop an intuitive, practitioner-oriented approach to identifying lowball firms, document the prevalence of the practice, and propose two explanations. Second, we add to several streams of literature on quarterly guidance (e.g., Houston et al. 2010; Chen et al. 2011), expectation management (e.g., Richardson et al. 2004; Cotter et al. 2006), and disclosure preferences of institutional investors (e.g., Healy et al. 1999; Bushee and Noe 2000). Our results indicate that overly cautious guidance appeals to certain types of institutional investors in the short term, but it is not sustainable and typically ends within two years. Hence, our study informs firm managers of the pros and cons of such a practice and alerts capital market participants of the ephemeral nature of lowball guidance.

Like many other studies in this field, our study is subject to some caveats and limitations. First, the vast literature on guidance has examined some properties of guidance that are related to

lowball guidance, such as the routine issuance of earnings guidance over consecutive quarters by many firms (Rogers and Van Buskirk 2013) and consistent biases in guidance over consecutive quarters by some firms (Hilary et al. 2014). But no prior study has examined lowballing using as large of a sample as ours, despite its extensive prevalence.[2] Thus we believe a comprehensive study of lowball guidance is not only warranted but also relevant. Second, our definition of lowball firms inevitably retains elements of subjectivity, despite being guided by practitioners' notions in various business press and based on empirical evidence on market participants' proclivities towards five-cent increments. We believe our robustness checks using alternative definitions of lowball guidance mitigate this concern. Third, while we control for a myriad of factors and use a matched-sample design, our analyses of the associations between lowball guidance and determinants and market implications do not test causality. Thus, our results should be interpreted with this caveat in mind.

The remainder of this paper is organized as follows. In Section 2 we provide institutional background information and explanations for lowballing. We then describe our data and sample in Section 3. Section 4 presents our empirical analyses and results. We conclude in section 5.

2. Institutional Background and Explanations for Lowballing

To the best of our knowledge, the term "lowball" was first used within the context of guidance in an online article at *TheStreet.com* (Lahart 1999), in which the director of research of First Call was quoted as saying "lowballing is a tempting thing to do because, for the first three or four quarters, you look like a hero." His remark suggested that lowball guidance is a practice managers desire in the short term, but the market is likely to recognize it after a few quarters.

[2] Using IBES data, we find that the percentage of U.S. firms providing EPS guidance has declined from 29% to 22% from 2001 to 2017, but as much as half of all these EPS guiders were lowball firms at some point. We posit that one reason for such prevalence of lowball guidance among EPS guiders is that, notwithstanding strong calls to eliminate guidance, firm managers choose to maintain guidance with a more cautious spin.

Since then, a number of high-profile firms have been recognized as "lowball" firms by the business press. Apple Inc. is often portrayed as the poster child of lowballing as it has consistently exceeded its guidance by a wide margin for nearly a decade starting in the early 2000's. By our estimates, Apple beat its own EPS guidance in all 39 quarters between 2003Q3 and 2013Q1 by an average of $0.79 per share.[3] Other well-known lowball firms include Netflix, Qualcomm, LinkedIn, and Boeing. For these and other firms, the business press has suggested that their guidance is "comically low" or a "ploy" (Yarow 2013; Columbus Dispatch 2009).

Lowball guidance is a form of quarterly earnings guidance, which has been criticized for inducing managers to focus on achieving short-term quarterly targets at the expense of long term value, thus fostering managerial myopia (Fuller and Jensen 2010). Partly due to such criticism, in the mid-2000s, some firms discontinued quarterly guidance, prompted by heightened earnings uncertainty and deteriorating performance (Houston et al. 2010, Chen et al. 2011). To partially offset the lost information from discontinued quarterly guidance, more firms started to issue annual guidance with quarterly updates (Tang, Yao, and Zarowin 2018). Nonetheless, quarterly guidance remains common among firms issuing guidance.

Prior research has not specifically examined lowball guidance, but the general form of guidance has been the subject of a large literature because it has been found to be a primary source of financial information (e.g., Ball and Shivakumar 2008; Beyer et al. 2010). Several defining features of lowball guidance, such as being consistently cautious over consecutive quarters and being issued regularly in conjunction with quarterly earnings announcements, have been studied in prior research. For example, the likelihood of guidance being issued concurrently with earnings announcements has increased over time and is positively correlated with the

[3] Apple stopped issuing EPS guidance in 2013Q2, and instead started to provide guidance for revenue, gross margin, operating expenses, other income or expense.

presence of conference calls (Rogers and Van Buskirk 2013). Moreover, guidance issued with a predictable bias has been shown to be more informative to sophisticated investors than guidance issued with a smaller but less predictable error (Hilary et al. 2014). It is also well documented that managers issue quarterly guidance to manage or "walk down" analyst expectations downward to achievable levels (Richardson et al. 2004, Cotter et al. 2006), especially if the firm has already met or beat analyst expectations for past consecutive quarters (Kross et al. 2011).

What distinguishes lowball guidance from these previously-examined general properties of guidance is its *repeated* and *large magnitude* of outperformance of reported actual earnings relative to the guidance. When the magnitude of guidance error is large, disclosure theory suggests that guidance credibility will be reduced (Stocken 2000), especially when such large error recurs on a regular basis. Empirical evidence also supports this prediction (Williams 1996, Rogers and Stocken 2005). Thus, assuming market participants (such as analysts and investors) update their assessment of guidance credibility in a Bayesian fashion, we expect them to be aware of firms' lowball guidance and take measures to adjust the expected errors when they react to lowball guidance. However, if investors and analysts fully adjust the expected errors, it begs the question of why firms issue lowball guidance in the first place. Thus, it is intriguing but also puzzling as to why lowball guidance exists, as there seem to be no sustainable long-term benefits for issuing lowball guidance. Nevertheless, we conjecture that, in the short-term, two mutually non-exclusive potential reasons may explain the lowball guidance phenomenon.

The first explanation is that firm managers might have genuine difficulty in forecasting the upcoming quarterly earnings if the firm's operations are uncertain or volatile, especially during periods of high growth in sales and profitability. For example, unexpected revenue growth across product lines and geographic segments, favorable mix shift towards higher margin

products, lower input costs, and improved manufacturing and operational efficiencies can all contribute to actual reported earnings far exceeding beginning-of-the-period guidance provided to capital markets. In such cases, guidance intended to be slightly cautious at issuance is likely to turn out to be overly cautious upon the announcement of actual earnings. This explanation suggests that lowballing is largely unintentional and is an artifact of higher-than-expected sales and earnings growth. While unpredictability can lead realized earnings to be higher or lower than guidance, we focus only on the *upside* unpredictability in explaining lowball guidance. We refer to this as the "unexpected growth" explanation for brevity.

The unexpected growth explanation, or specifically managers' tendencies to be cautious with public guidance, relates to certain prior research. First, it is known that the payoff to guidance error is asymmetric in the sense that overestimating earnings tends to be punished more severely by the markets than underestimating earnings (e.g., Skinner and Sloan 2002). There are also greater litigation concerns when bad news is delayed than when good news is delayed (Skinner 1994; 1997). Thus, when facing a wider distribution of expected future earnings, managers would rationally choose to publicly disclose a forecast at the lower end of such distribution to minimize the expected penalty from misestimating. As a result, the likelihood of underestimating earnings increases with earnings unpredictability, as the unexpected growth explanation predicts. Second, lowball guidance is related to another phenomenon in which managers issue guidance that differs from actual earnings with a consistent and predictable error. Hilary et al. (2014) show that such guidance is usually issued with a downward bias and generates greater market reaction compared with guidance with a less consistent error. While one may view lowball guidance as a form of consistent guidance error, the "unexpected growth" explanation, however, does not fit well with the consistent guidance error phenomenon

documented by Hilary et al (2014). This is because earnings unpredictability reduces managers' ability to imbed a consistent error in their guidance, while it increases the likelihood of lowballing as we explained earlier.[4] Thus, evidence supporting the unexpected growth explanation also supports the point that lowball guidance is a different phenomenon than the consistent guidance phenomenon in Hilary et al. (2014).

The second explanation for lowball guidance is that firm managers deliberately provide guidance that they expect their firms to exceed by a wide margin. While such actions may be intended to trigger a stock price jump at the earnings announcement, a more plausible, deeper motive is to appease existing analysts and institutional investors and to attract new analysts and investors. It is well documented that many analysts and institutional investors are fixated on whether firms achieve quarterly earnings targets (e.g., Matsumoto 2002; Bartov et al. 2002). There is also evidence that some institutional investors prefer firms that achieve near-term earnings over longer-term targets (Bushee 2001). Thus, there is nothing dishonest or illegal about this practice, which is intended to appease capital markets participants' desire for consistent delivery of quarterly earnings that exceed expectations. We refer to this motive as the "market appeasement" explanation.

It is important to note that these two explanations are mutually non-exclusive and likely coexist across different firms over various times. Therefore we test each explanation both in the time series and in the cross section.

3. Data and Sample

We obtain quarterly earnings-per-share (EPS) guidance data from the Thomson Reuters IBES Guidance Detail file. Starting with all point and range forecasts from 2001Q1 to 2017Q4,

[4] Using our sample, we compare the standard deviation of management guidance errors between lowball and matched non-lowball firms. Consistent with our argument, we find greater volatility in guidance errors by lowball firms than by non-lowball firms ($p<0.01$).

we select our sample as follows. First, we eliminate any guidance issued after the end of the guided fiscal quarter as they are usually considered earnings pre-announcements or warnings rather than guidance for market expectations (Houston et al. 2010; Kross et al. 2011). Second, we require that the guidance be issued during the guided quarter rather than in advance, thus to ensure that all guidance in our sample are comparable and issued for the upcoming quarter. Third, if multiple guidance exist for the same quarter, we retain only the last guidance so as not to misclassify non-lowball firms that correct their cautious guidance with a within-quarter revision. Fourth, we require sufficient data in the IBES Detail History file, Compustat, and CRSP, in order to compare guidance with actual reported EPS and to run our empirical tests. Fifth, we eliminate firms with guidance or actual reported EPS in any quarter larger than $20 to reduce the effects of extreme observations. Sixth, we eliminate firms that have never issued any quarterly EPS guidance for the entire sample period from 2001 to 2017, and we keep all firm-quarters (with or without quarterly guidance) for firms that issued guidance at least once during the sample period. Our final sample consists of 118,099 firm-quarter observations from 2,953 unique firms. Table 1 provides details of the sample selection process.

3.1 Identification of Lowball Firms

Although bias and pessimism in guidance have been examined in some prior research (e.g., Hilary et al. 2014), to our knowledge, no prior study has specifically examined lowball guidance, which has been discussed primarily in practitioner-oriented media and publications. Hence, to conduct formal analyses, we start by developing a procedure to identify lowball firms, guided by practitioner-oriented articles. We search for and read numerous articles in the business press about firms that have gained a reputation for providing lowball guidance. We find articles about high-profile lowball firms such as Apple, Netflix, Qualcomm, LinkedIn, and Boeing.

These articles commonly discuss a firm's own guidance for quarterly or annual EPS issued early in the forecast period, followed by an actual reported EPS that far exceeded its guidance, as well as quotes from institutional investors or sell-side analysts about the firm's reputation for lowballing. While sometimes the articles also mention how a firm's actual EPS compares with analysts' consensus forecasts, the reference to lowballing is primarily concerning the firm's actual EPS beating the firm's own guidance. The articles also typically mention that the firm has a consistent history of providing lowball guidance and large earnings beats. After surveying these business press articles, we operationalize our definition of a lowball firm as one that has reported actual EPS that exceeded guidance by at least \$0.05 for four consecutive quarters. For firms that provided range guidance, we use the midpoint value to compute the earnings beat.[5]

Although the choice of \$0.05 may seem arbitrary, there is ample empirical evidence that market participants gravitate towards EPS expectations rounded to increments of five cents for a number of reasons and incentives. Herrmann and Thomas (2005) document that some sell-side analysts round their forecasts due to limited resources or less effort, a conclusion also concurred by Dechow and You (2012). Bamber et al. (2010) show that analysts' tendencies to round to the nearest nickel are in part influenced by firm managers' tendencies to do the same.[6] Cheong and Thomas (2011) find that firm managers and analysts' EPS forecast errors do not vary with the magnitude or the scale of EPS, and a large portion of these forecast errors are about five cents. Given the body of evidence, we believe that a \$0.05 EPS beat is a reasonable cutoff for our purposes.[7]

[5] Our inferences remain unchanged if we use the upper bound instead (Ciconte, Kirk and Tucker 2011).
[6] Bamber et al. (2010) argue that managers do so due to a heuristic response to uncertainty, as well as optimism, and efforts to protect the firm's proprietary information.
[7] Empirically, a one-time five-cent beat is not an easy or frequent occurrence, let alone four in a row. A frequency analysis based on I/B/E/S data on quarterly EPS guidance and actuals reveals that a one-cent beat is most common, which occurs in 13.4% of observations. The next most common occurrences are a two-cent beat (11.8%), three-cent beat (9.5%), an exact meet (7.9%), a four-cent beat (7.0%), a one-cent miss (6.2%), and then a five-cent beat (5.3%).

To illustrate our identification procedure, consider the following example. If Firm A beat its guidance by $0.05 or more in each of the four quarters in 2001, then we identify Firm A as a lowball firm after the fourth quarter of 2001. Using this method, we identify Apple as a lowball firm after the second quarter of 2005, Netflix after the second quarter of 2010, Qualcomm after the third quarter of 2015, and LinkedIn after the first quarter of 2016. However, our method does not identify Boeing as a lowball firm because Boeing does not provide quarterly EPS guidance, but instead, provides only annual EPS guidance. We acknowledge that our definition of lowball firms is inevitably subjective, but the fact that our method successfully identified most of the firms mentioned in the business press articles as lowball firms suggests that it is a reasonable one.

In total, we identify 329 firms, or 11.1 percent of our sample, as lowball firms at some point during our sample period. Figure 1 illustrates the number of newly-identified lowball firms in each quarter, with a median of four and a high of 16 in 2009Q4. It is notable that the financial crisis in late 2008 and early 2009 likely led many firms to issue overly cautious guidance during that time, which was then beaten by a large margin. According to our method, these firms would be identified as lowball firms sometime between 2009Q4 and 2010Q4. Figure 1 shows this scenario, as there are 57 lowball firms identified during this period. Figure 2 shows the cumulative number of lowball firms each quarter; the median is 21 and the high is 48 in 2010Q2. It also appears that the number of lowball firms has risen steadily to exceed the median over the last five years of the sample period (2013-2017), suggesting that the lowball phenomenon has become increasingly relevant in recent years.[8]

Furthermore, 70.8% of observations are below a five-cent beat. Hypothetically, in a random draw, the probability of four consecutive quarters of at least a five-cent beat would be $(0.292)^4 = 0.0073$ or 0.73%.

[8] Data requirements for all variables reduce the sample size of lowball firms in subsequent regressions. Results in Tables 2 and 3 are based on 301 lowball firms, and results in Table 4 are based on 253 lowball firms.

3.2 Lowball Firms that Stop Lowballing

To better understand firms' lowball decisions, we examine whether and when lowball firms stop providing lowball guidance. We define three scenarios in which the lowball guidance pattern stops. The first is when a firm stops providing guidance altogether. The second is when a firm disappoints the market by failing to meet its guidance. Third, we consider the scenario in which a firm beats its guidance by *less* than \$0.05 for two or more consecutive quarters. Although the criterion of two or more consecutive quarters is based on our discretion, we make this design choice to avoid misclassifying lowball firms that incidentally experienced a small beat for only one quarter.

We find that, on average, lowball firms maintain the pattern of beating guidance by at least \$0.05 for seven to eight quarters, but there is significant variation in the duration of lowball episodes. About a quarter of the lowball firms maintain it for only four quarters, while about a tenth of the firms maintain it for more than three years. Eventually, however, almost all lowball firms (293 out of 329) stop the pattern. Among these firms, we find that 74 firms stopped giving guidance at one point, 117 firms disappointed the market by missing their guidance, and 102 firms started to beat their guidance by less than \$0.05 for two or more consecutive quarters. We provide additional analyses on firms' ending of lowball guidance in Section 4.3.

4. Empirical Analyses and Results

In this section we present our empirical analyses and results. Section 4.1 examines the determinants of lowball guidance using both time-series and cross-sectional analyses. Section 4.2 evaluates the market implication of lowball guidance. Section 4.3 studies the termination of lowball guidance. Section 4.4 investigates how lowball guidance is associated with the likelihood of meeting and beating analyst consensus. Section 4.5 examines whether lowballing is associated

with better stock performance than matched non-lowball firms. Section 4.6 presents robustness tests.

4.1 Determinants of Lowball Guidance

We conduct both cross-sectional and time-series analyses to investigate *which* types of firms provide lowball guidance and *when* they start lowballing. We begin with time-series analyses, where we compare lowball firms with themselves before and after initiating lowball guidance, identified using the method described in Section 3. We then conduct cross-sectional analyses, where we match lowball firms to non-lowball firms by year, industry, and firm size. Both sets of analyses shed light from different perspectives on the two explanations for lowball guidance proposed in Section 2.

4.1.1 Time-Series Regressions

The purpose of the time-series analyses is to understand *when* firms initiate lowball guidance. We estimate the following logistic regression.

$$\begin{aligned}\Pr(LOWBALL_{i,t}=1) = {} & \beta_0 + \beta_1(SALESGR_{i,t}) + \beta_2(EARNGR_{i,t}) + \beta_3(EARNVOL_{i,t}) \\ & + \beta_4(ANALYSTCOV_{i,t}) + \beta_5(PIH\_TRA_{i,t}) + \beta_6(PIH\_DED_{i,t}) \\ & + \beta_7(PIH\_QIX_{i,t}) + \beta_8(SIZE_{i,t}) + \beta_9(ROA_{i,t}) + \beta_{10}(LEVERAGE_{i,t}) \\ & + \beta_{11}(BTM_{i,t}) + \beta_{12}(SEO_{i,t}) + \beta_{13}(M\&A_{i,t}) + \beta_{14}(RDINTENSE_{i,t}) \\ & + \beta_{15}(IFIRST\_GUIDE_{i,t}) + Industry\ Fixed\ Effects + \varepsilon_{i,t} \qquad (1)\end{aligned}$$

To ease exposition, we refer to the four consecutive quarters of beating guidance by at least \$0.05 as period *t*, and the four prior quarters as period *t-1*. We compare a lowball firm in period *t* to itself from period *t-1*. We believe this is a powerful setting as lowball firms chose to lowball during period *t* but not during period *t-1*, and hence, the comparison helps identify the time-specific factors that change the firms' lowball choice from period *t-1* to period *t*.

The dependent variable, $LOWBALL_{i,t}$, is set to one for lowball firm *i* in the lowball period *t*, and zero for the non-lowball period *t-1*. The first set of independent variables are motivated by

the unexpected growth explanation for lowball guidance as discussed in Section 2. Under this explanation, firms are more likely to issue lowball guidance when they are growing rapidly but with high uncertainty. We measure a firm's growth using *SALESGR* and *EARNGR*, defined as seasonal growth in sales and earnings (income before extraordinary items), respectively, averaged over the four quarters of period *t* and period *t-1*.[9] We measure the unpredictability of growth using *EARNVOL*, calculated as the standard deviation of quarterly reported earnings during the prior five years. The unexpected growth explanation predicts positive coefficients on *SALESGR*, *EARNGR*, and *EARNVOL*.

The second set of independent variables are motivated by the market appeasement explanation for lowball guidance, also discussed in Section 2. Under this explanation, firms are more likely to issue lowball guidance when they have higher analyst coverage and institutional ownership. We measure analyst coverage using *ANALYSTCOV*, which is the log of one plus the number of unique analysts who issued an EPS forecast for the firm during the fiscal quarter, averaged over the four quarters of period *t* and period *t-1*. We measure institutional ownership using *PIH*, which is the percentage of common shares outstanding held by institutional investors as of the end of the latest calendar quarter, averaged over period *t* and *t-1*. The market appeasement explanation predicts positive coefficients on the analyst coverage and institutional ownership variables.

Following Bushee (1998, 2001), we also partition the ownership by institutional investors into three types: transient, dedicated, and quasi-indexer (*PIH_TRA*, *PIH_DED*, and *PIH_QIX*). The relation between each type of institution and a firm's disclosure strategy is typically not the same. Bushee and Noe (2000) show that transient institutions utilize short-term trading strategies

[9] Because we require data for the four quarters in time period *t*, as well as the four quarters in time period *t-1*, we lose 28 lowball firms that have some missing data during the *t-1* period. As a result, there are 301 lowball firms in the time-series regressions with 602 firm-period observations.

that benefit from more frequent firm disclosures, while dedicated institutions have longer-term horizons and have better access to private discussions with management and rely less on public disclosures. Quasi-indexers are more likely to use passive investment strategies and are also less reliant on guidance disclosures. Given these contrasting styles and preferences for public disclosures in general, and earnings guidance in particular, we expect lowball guidance to be positively related to the presence of transient institutions, and negatively related to dedicated and quasi-indexer institutions.

We follow prior research and control for several factors that are likely associated with firms' guidance choices (e.g., Lennox and Park 2006; Rogers et al. 2009). *SIZE* is the log of market capitalization, *ROA* is return on assets, defined as operating income divided by average total assets, *LEVERAGE* is the debt-to-equity ratio, and *BTM* is the book-to-market ratio of equity, averaged over the four quarters of period *t* and period *t-1*. To control for significant financing and investing activities that likely influence a firm's disclosure practice (Frankel et al. 1995), we include *SEO* and *M&A*, the average of the indicator variable of seasoned equity offering and merger and acquisition activities, respectively, over the four quarters of period *t* and period *t-1*. *SEO* is set to one if proceeds from the sale of common and preferred stock over the current and next three quarters are greater than ten percent of total assets at the beginning of the current quarter, and *M&A* is set to one if the amount spent on acquisitions over the current and next three quarters is greater than ten percent of total assets at the beginning of the current quarter. To control for firm complexity, which can lead to higher information asymmetry (Barth et al. 2001; Bushee et al. 2018), we include *RDINTENSE*, defined as R&D expense scaled by average total assets.[10] We also include *IFIRST_GUIDE*, an indicator variable set to 1 if a firm is

[10] Substituting other proxies for firm complexity such as the number of business and geographic segments (Huang et al. 2014) do not change the results or inferences for the variables of interest.

providing guidance for the first time during the first quarter of the four quarters of period *t* and period *t-1*, respectively, to test whether lowballing is related to first-time guidance. Lastly, we include industry fixed effects using the Fama-French 12 industry classification. The appendix includes detailed definitions for all variables. All continuous variables are winsorized at the 1st and 99th percentiles to mitigate the influence of outliers, with the exception of earnings growth (*EARNGR*), which is winsorized at the 5th and 95th percentiles due to a small denominator problem.

Table 2 Panel A presents the descriptive statistics of the variables in Equation (1). The sample consists of 602 firm-periods, corresponding to 301 lowball firms in both periods *t-1* and *t*. The median sales growth and earnings growth are 10.4 percent and 13.8 percent, indicating moderately high growth among sample firms. The median firm is covered by 10 analysts and 82.9 percent of shares outstanding is held by institutional investors.

Table 2 Panel B reports the results from the time-series logistic regressions of Equation (1) with the institutional ownership aggregated (*PIH*) in Column (1) and partitioned into transient (*PIH_TRA*), dedicated (*PIH_DED*), and quasi-indexer (*PIH_QIX*) in Column (2). We report *t*-statistics in parentheses and cluster the standard errors by firm. The tests of significance are one-tailed for variables with directional predictions and two-tailed otherwise.[11] In both columns, *SALEGR, EARNGR*, and *EARNVOL* are significantly positive at the 0.05 level or better, consistent with the unexpected growth explanation. To get a sense of the economic significance, the marginal effect of each variable, based on the coefficients in Column (1), is 26.1, 2.8, and 10.6 percent, respectively; an interquartile shift in each variable would increase the probability of a firm to provide lowball guidance by 5.8, 2.6, and 1.9 percent, respectively, which is significant considering that 11.1 percent of the sample firms were identified as lowball firms.

[11] In case of results contrary to directional predictions, two-tailed tests apply.

ANALYSTCOV is insignificant in both columns, which does not appear to support the market appeasement explanation, at least regarding sell-side analysts. *PIH* in Column (1) and *PIH_TRA* in Column (2) are significantly positive at the 0.10 level or better, which suggests that appeasement of institutional investors is a relevant factor. However, *PIH_DED* in Column (2) is significantly negative at the 0.1 level, indicating that firms tend to adopt a lowball guidance policy when transient investor ownership is high but not when dedicated institutional ownership is high. An interquartile shift in *PIH_TRA* (*PIH_DED*) would increase (decrease) the probability of a firm to provide lowball guidance by 4.6 (2.1) percent. The coefficient for *PIH_QIX* is insignificant. Overall, the time-series results provide some support for both explanations for why firms provide lowball guidance.

Among the control variables, *ROA* is significantly positive in both columns, indicating that high profit firms are more likely to provide lowball guidance. *M&A* is significantly negative in both columns, suggesting that firms undergoing acquisitions are less likely to provide lowball guidance, consistent with findings from Frankel et al. (1995) that such firms are more likely to issue guidance that more accurately reflects subsequent actual reported earnings.

4.1.2 Cross-Sectional Regressions

To understand *which* firms are more likely to adopt lowball guidance, we estimate a cross-sectional regression similar to the time-series regression, except that we average all independent variables over the four quarters during period *t*. In addition, we include two extra variables to control for firm age and the fiscal fourth quarter. *FIRMAGE* is measured as the log of the number of years a firm has existed in the CRSP dataset, averaged over period *t*.[12] *FQ4* is an indicator variable set to 1 (0 otherwise) if the last of the four consecutive quarters during

[12] We do not include *FIRMAGE* in our time-series regressions because this variable increases monotonically for all lowball firms when they shift from non-lowball period *t-1* to lowball period *t*.

period *t* is the fiscal fourth quarter. We include the latter variable because Rangan and Sloan (1998) find that market analyses differ depending on whether four consecutive quarters are in the same fiscal year. For each lowball firm, we identify a control firm (i.e., a non-lowball firm throughout our sample period), matched by year, industry (Fama-French 12), and size (market capitalization).[13]

$$\begin{aligned}\Pr(LOWBALL_{i,t}=1) = {} & \beta_0 + \beta_1(SALESGR_{i,t}) + \beta_2(EARNGR_{i,t}) + \beta_3(EARNVOL_{i,t}) \\ & + \beta_4(ANALYSTCOV_{i,t}) + \beta_5(PIH\_TRA_{i,t}) + \beta_6(PIH\_DED_{i,t}) + \beta_7(PIH\_QIX_{i,t}) \\ & + \beta_8(SIZE_{i,t}) + \beta_9(ROA_{i,t}) + \beta_{10}(LEVERAGE_{i,t}) + \beta_{11}(BTM_{i,t}) + \beta_{12}(SEO_{i,t}) \\ & + \beta_{13}(M\&A_{i,t}) + \beta_{14}(RDINTENSE_{i,t}) + \beta_{15}(IFIRST\_GUIDE_{i,t}) + \beta_{16}(FIRMAGE_{i,t}) \\ & + \beta_{17}(FQ4_{i,t}) + Industry\ Fixed\ Effects + \varepsilon_{i,t} \qquad (2)\end{aligned}$$

Descriptive statistics of the variables used in the cross-sectional regressions are shown in Table 3, Panel A. The sample consists of 602 firm-periods, corresponding to 301 lowball firms and 301 control (non-lowball) firms, all in period *t*. With the inclusion of control firms (non-lowball firms), the median sales growth and earnings growth are 10.2 percent and 11.3 percent, slightly lower than the medians for only lowball firms in Table 2, Panel A. The median firm is covered by 10 analysts and 81.5 percent of shares outstanding are held by institutional investors. *FQ4* has a mean of 0.304 for the pooled sample and 0.342 for lowball firms (unreported), suggesting that about 34% of lowball firms initiate lowballing from the first fiscal quarter.

Table 3 Panel B reports the results from the cross-sectional regressions of Equation (3) with the institutional ownership aggregated (*PIH*) in Column (1) and separated into transient (*PIH_TRA*), dedicated (*PIH_DED*), and quasi-indexer (*PIH_QIX*) in Column (2). We report *t*-statistics in parentheses and cluster the standard errors by firm. In both columns, *SALEGR*, *EARNGR*, and *EARNVOL* are significantly positive at the 0.10 level or better, consistent with the unexpected growth explanation. *ANALYSTCOV* in Column (1) is positive and significant at the

[13] As a robustness check, we also matched two control firms to each lowball guidance firm, with and without replacement. We find that the results are similar or slightly stronger than for those presented in Table 3, Panel B.

0.10 level, consistent with the market appeasement explanation that firms adopt lowball policies to attract or maintain the coverage of analysts. When *PIH*, significantly positive at the 0.05 level in Column (1), is partitioned into transient (*PIH_TRA*), dedicated (*PIH_DED*), and quasi-indexer (*PIH_QIX*) in Column (2), only *PIH_TRA* is significantly positive at the 0.01 level while the others are insignificant, suggesting that firms with high transient ownership tend to adopt a lowball guidance policy. Compared with the time-series results in Table 2, the cross-sectional results in Table 3 are similar in supporting the unexpected growth explanation and slightly stronger in supporting the market appeasement explanation. Taken together, our tests provide corroborating and supportive evidence for both explanations for why some firms provide lowball guidance at certain times.

4.2 Implications of Lowball Guidance

In this section, we examine the market implications of lowball guidance. Our reading of the business press articles suggests that financial analysts and institutional investors pay the most attention to firms' lowball guidance practices. Thus, we focus on whether lowball guidance is associated with changes in institutional ownership and analyst coverage, as well as changes in analysts' research outputs such as stock recommendations and earnings forecasts. Evidence of such associations would be consistent with the market appeasement explanation for lowball guidance.

We estimate the following OLS regression using a difference-in-difference design with the same set of lowball guidance firms and control firms from the cross-sectional analyses in the previous section.

$$Dep\_Var_{,t} = \beta_0 + \beta_1(LOWBALL_{i,t}) + \beta_2(POST_{i,t}) + \beta_3(LOWBALL*POST_{i,t}) + \beta_4(SALESGR_{i,t}) + \beta_5(ANALYSTCOV_{i,t} \text{ or } PIH_{i,t}) + \beta_6(SIZE_{i,t}) + \beta_7(ROA_{i,t}) + s\beta_8(LEVERAGE_{i,t}) + \beta_9(BTM_{i,t}) + \beta_{10}(RDINTENSE_{i,t}) + \beta_{11}(FIRMAGE_{i,t}) + \beta_{12}(LOSS_{i,t}) + \beta_{13}(RET_{,t}) + \beta_{14}(VOLATILITY_{i,t}) + \beta_{15}(TURNOVER_{i,t}) +$$

$$Industry\ Fixed\ Effects + \varepsilon_{i,t} \quad (3)$$

The dependent variables include institutional ownership, analyst coverage, and analyst research output properties. The independent variable of interest is the interaction of two indicator variables: *LOWBALL*, set to one if a firm has been identified as a lowball firm, and *POST*, set to one for the four-quarter period *t+1* after a firm is identified as a lowball firm and zero for the four-quarter period *t*. Similar to our cross-sectional tests, for each lowball firm, we identify a control firm (i.e., a non-lowball firm throughout our sample period), matched by year, industry, and size. *LOWBALL* is set to zero for control firms and *POST* is based on the year matched to the lowball firm. A significant coefficient (β_3) for the interaction *LOWBALL*POST* would indicate that lowball firms experience a higher or lower level of the dependent variable after becoming a lowball firm, relative to non-lowball firms.

For institutional ownership as the dependent variable, we use *PIH*, measured as the percentage of common shares held by institutional investors, averaged over the four quarters during period *t* in the pre-period and during period *t+1* in the post-period. Then we partition the institutional ownership by transient (*PIH_TRA*), dedicated (*PIH_DED*), and quasi-indexer (*PIH_QIX*), and use each as the dependent variable. If lowball firms are attempting to appease institutional investors, especially to transient institutional investors, then we expect the interaction *LOWBALL*POST* to be significantly positive.

For analyst coverage as the dependent variable, we use *ANALYSTCOV*, as previously defined and averaged across period *t* in the pre-period and *t+1* in the post-period.[14] If firms provide lowball guidance to appease sell-side analysts, then we expect the coefficient for the interaction *LOWBALL*POST* to be significantly positive.

[14] When institutional ownership is the dependent variable, we include analyst coverage as an independent variable. Similar, when analyst coverage, recommendations, and earnings forecast properties are the dependent variables, we include institutional ownership as an independent variable.

We measure the average recommendation issued by analysts for a given firm's stock; *MEANREC* is the mean recommendation among analysts for a given firm immediately prior to an earnings announcement, where a higher value represents a more positive recommendation.[15] We also measure analyst forecast optimism, dispersion, and accuracy as the dependent variable. *OPTIMISM* is the mean earnings forecast immediately before an earnings announcement minus actual earnings, scaled by the firm's stock price at the end of the fiscal quarter. *DISPERSION* is the standard deviation of forecasts measured immediately before an earnings announcement. *ABSERROR* is the absolute value of the difference between the earnings forecast immediately before an earnings announcement and actual earnings, scaled by the firm's stock price at the end of the fiscal quarter. Each analyst recommendation and forecast variable is averaged across period *t* in the pre-period and *t+1* in the post-period. Given that it is unclear *ex ante* how lowball guidance may be associated with subsequent analyst recommendation and forecast properties, we do not make directional predictions for the interaction term. For example, analysts may issue very cautious forecasts following a firm's lowball guidance, or alternatively, analysts may adjust their forecasts upward because they perceive the firm's guidance to be overly cautious.

We control for various firm and stock characteristics that have been shown in prior studies to be associated with institutional ownership and analyst coverage (Healy et al. 1999; Bushee and Miller 2012). Firm size (*SIZE*), growth (*SALESGR*), profitability (*ROA*), leverage (*LEVERAGE*), book-to-market (*BTM*), R&D intensity (*RDINTENSE*), and age (*FIRMAGE*) are as previously defined. In addition, to control for loss firms, *LOSS* is an indicator variable set to one if a firm's quarterly net income is negative. Stock characteristics include stock return, volatility, and turnover, measured over a given quarter. *RET* is the log of one plus the cumulative

[15] In the IBES scale for analyst stock recommendations, a Strong Buy is coded as 1, followed by 2 for Buy, 3 for Hold, 4 for Sell, and 5 for Strong Sell. To facilitate the interpretation, we multiply these values by −1 so that higher values correspond to more positive recommendations.

raw return during the fiscal quarter, *VOLATILITY* is the standard deviation of daily returns during the fiscal quarter, and *TURNOVER* is the log of daily volume scaled by market capitalization averaged over the fiscal quarter. All variables are averaged across period *t* in the pre-period and *t+1* in the post-period. Detailed variable definitions are included in the appendix, and all continuous variables are winsorized at the 1st and 99th percentiles.

Table 4 Panel A presents the descriptive statistics of the variables used in the analysis of the market implications of lowball guidance. The sample size is 1,102 firm-periods, consisting of 253 lowball firms and 253 control (non-lowball) firms, all measured in both periods *t* and *t+1*.

Table 4 Panel B presents the results from estimating regression Equation (3). We report t-statistics in parentheses and cluster the standard errors by firm. Panel B shows the results for institutional ownership, with aggregate institutional ownership in Column (1) and disaggregated institutional ownership in Columns (2) to (4). The interaction term *LOWBALL*POST* is significantly positive at the 0.01 level only in Column (2), where the dependent variable is *PIH_TRA*. This result suggests that firms experience higher levels of transient institutional ownership after adopting a lowball guidance policy, relative to non-lowball firms. In terms of economic magnitude, the coefficient 0.021 indicates that adoption of a lowball guidance policy is associated with an increase in transient institutional ownership by 11.7 percent (0.021/0.179) of its mean level. In terms of the control variables, the results are consistent with prior studies that find institutional investors generally tend to invest in stocks with higher liquidity and lower volatility (e.g., Gompers and Metrick 2001).

Table 4 Panel C shows the results for analyst coverage in Column (1), recommendations in Column (2), and earnings forecast properties in Columns (3) to (5). In Column (1), contrary to our prediction, the interaction term is significantly negative at the 0.05 level, suggesting that

firms on average lose analyst coverage after adopting a lowball guidance policy, relative to non-lowball firms. However, the economic magnitude of the coverage drop is not large. The −0.049 coefficient translates into a 4.9 percent decrease in *ANALYSTCOV* relative to the mean level of coverage, which turns out to be one-half an analyst. In Column (3), where dependent variable is *OPTIMISM*, the interaction term *LOWBALL*POST* is significantly positive at the 0.05 level, suggesting that analysts issue more optimistic earnings forecasts for firms that start providing lowball guidance than for non-lowball firms. Finally, in Columns (2), (4) and (5), where the dependent variable is *MEANREC*, *DISPERSION* and *ABSERROR*, the interaction term is insignificant, suggesting that recommendations and these properties of earnings forecasts are not significantly different between lowball and non-lowball firms.

Overall, the difference-in-differences results in Panels B and C of Table 4 indicate that, relative to non-lowball firms, lowball firms on average experience higher ownership by transient institutions and more optimistic analyst forecasts after they adopt a lowball guidance policy, consistent with the market appeasement explanation that lowball guidance seems to appeal to analysts and transient investors. However, there is also evidence on one side-effect that lowball firms seem to slightly lose some analyst coverage.

4.3 Termination of Lowball Guidance

In Section 3.2, we provide descriptive statistics of how many firms stopped providing lowball guidance, by either stopping providing guidance, failing to meet guidance, or exceeding guidance by a small margin (less than $0.05) for two or more consecutive quarters. In this section, we examine the antecedents of the termination of lowball guidance policy. This analysis is parallel to that of Section 4.1 where we examine when and why firms begin to provide lowball guidance.

We estimate the following logistic regression Equation (4), which is similar to Equation (1), except that the dependent variable is an indicator variable for lowball firms' stoppage of lowball guidance (*STOP)*, set to one in the first fiscal quarter in which it stopped lowballing (quarter *t*), and zero for the last fiscal quarter in which it lowballed (quarter *t-1*). The independent variables are also measured in quarters *t* and *t-1*, respectively. We use one quarter rather than four quarter in this analysis to pinpoint factors associated with the decision to stop lowballing. In addition, we partition the stoppage into the three scenarios discussed earlier: guidance no longer provided (*NOGUIDE*), firm failed to meet guidance (*DISAPPOINT*), and firm exceeded guidance by a small margin for two or more quarters (*SMALLBEAT*).

$$\begin{aligned}\Pr(STOP_{i,t}=1) = {} & \beta_0 + \beta_1(SALESGR_{i,t}) + \beta_2(EARNGR_{i,t}) + \beta_3(EARNVOL_{i,t}) \\ & + \beta_4(ANALYSTCOV_{i,t}) + \beta_5(PIH\_TRA_{i,t}) + \beta_6(PIH\_DED_{i,t}) \\ & + \beta_7(PIH\_QIX_{i,t}) + \beta_8(SIZE_{i,t}) + \beta_9(ROA_{i,t}) + \beta_{10}(LEVERAGE_{i,t}) \\ & + \beta_{11}(BTM_{i,t}) + \beta_{12}(SEO_{i,t}) + \beta_{13}(M\&A_{i,t}) + \beta_{14}(RDINTENSE_{i,t}) \\ & + Industry\ Fixed\ Effects + \varepsilon_{i,t} \qquad (4)\end{aligned}$$

Table 5 Panel A presents the descriptive statistics of the variables used in Equation (4). The sample consists of 586 firm-quarters, corresponding to 293 lowball firms in the quarter that they stopped lowballing (*t*) and the quarter before (*t-1*). Panel B presents the regression results of Equation (4), with all cases of stopping lowball guidance in Column (1) and the three subsamples in Columns (2) to (4). We report t-statistics in parentheses and cluster the standard errors by firm. The tests of significance are one-tailed for variables with directional predictions and two-tailed otherwise. In Column (1), where the dependent variable is *STOP*, the coefficients for *SALESGR* and *EARNGR* are significantly negative at the 0.01 level, consistent with the unexpected growth explanation and suggest that lowball guidance stops when high growth moderates. *EARNGR* is also significantly negative in Columns (2), (3), and (4), where the dependent variable are *NOGUIDE, DISAPPOINT* and *SMALLBEAT* respectively, suggesting that

a decline in earnings growth is a factor for firms to stop lowballing under each scenario. Interestingly, *NOGUIDE* in Column (2) is negatively associated with *ANALYSTCOV* at the 0.05 level, whereas *DISAPPOINT* in column (3) is positively associated with *ANALYSTCOV* at the 0.01 level. These results suggest that lowball firms are likely to stop providing guidance following a *decline* in analyst coverage, but they are also more likely to disappoint the market by failing to meet their guidance following an *increase* in analyst coverage. In either scenario, the pattern of lowball guidance stops. Overall, we interpret these results to be complementary to the results in Table 3, which show that sales growth, earnings growth, and analyst coverage are associated with firms' lowball guidance.

4.4 Meeting or Beating Analyst Consensus Forecasts

The results in prior sections indicate that the start of lowballing is positively related to growth in sales and earnings, earnings volatility, analyst coverage, and transient institutional ownership, consistent with the unexpected growth and market appeasement explanations. Then, we found that the end of lowballing is associated with declines in growth and analyst coverage. In all these analyses, we compare firms' reported EPS to the firms' guidance. In this section, to shed further light on the lowball phenomenon, we examine how lowballing is related to meeting or beating analyst consensus forecasts. The motivation for this analysis is from our reading of the business press (as discussed in Section 3.1), which suggests that one potential incentive for firms to provide lowball guidance is to ensure the meeting or beating of analysts' expectations.

We examine how often a firm meets or beats the consensus forecast during three periods: the four quarters before the lowballing begins (period *t-1*), the first four quarters after the start of lowballing (i.e., beating guidance by at least $0.05) (period *t*), and the four quarter afterwards (period *t+1*). In each period, we define the percentage of quarters in which the actual reported

EPS met or beat (*MBE%*) or strictly beat (*BEAT%*) the analyst mean consensus forecast. We use these as the dependent variable of the following difference-in-differences regression models, in which all variables are defined as before except that *POST* is set to one for period *t* and zero for period *t-1* when we examine the initial effect of lowballing, and it is set to one for period *t+1* and zero for period *t* when we examine the ongoing effect of lowballing after it has started.

$$\begin{aligned} MBE\%\ (or\ BEAT\%)_{,t} = {} & \beta_0 + \beta_1(LOWBALL_{i,t}) + \beta_2(POST_{i,t}) + \beta_3(LOWBALL*POST_{i,t}) \\ & + \beta_4(SALESGR_{i,t}) + \beta_5(ANALYSTCOV_{i,t}) + \beta_6(SIZE_{i,t}) + \beta_7(ROA_{i,t}) \\ & + \beta_8(LEVERAGE_{i,t}) + \beta_9(BTM_{i,t}) + \beta_{10}(FIRMAGE_{i,t}) + \beta_{11}(LOSS_{i,t}) \\ & + Industry\ Fixed\ Effects + \varepsilon_{i,t} \end{aligned} \quad (5)$$

Table 6 presents the results of this analysis. In columns (1) and (2), where the dependent variable is *MBE%* and *BEAT%*, respectively, we examine the initial effect of lowballing and find the interaction term *LOWBALL*POST* significantly positive at the 0.01 level. As expected, these results indicate that lowball firms are more likely to meet or beat analyst consensus immediately after starting lowball guidance, relative to matched non-lowball firms. In contrast, in columns (3) and (4), where we examine the ongoing effect of lowballing, we find the opposite result, that is, the interaction term *LOWBALL*POST* is significantly negative at the 0.01 level. This indicates that lowball firms are less likely to meet or beat analyst consensus relative to non-lowball firms, after they have been lowballing for four quarters.[16]

These results, along with those from Table 4 Panel C, paint an interesting picture of how analysts react to firms' lowball guidance. During the initial lowball guidance period, analysts do

[16] In addition to exploring how lowball guidance is related to the meeting and beating of analyst consensus, we also explore how lowball guidance might be related to the phenomenon of firms' "walking down" analyst expectations documented in prior literature (Richardson et al. 2004; Cotter et al. 2006). In untabulated analysis, we find that the guidance provided by lowball firms is *not* more likely to be below the prevailing analyst consensus than that of non-lowball firms. In fact, non-lowball firms, including those providing guidance only occasionally, issue guidance below the prevailing consensus about 65% of the time, compared to 53% for lowball firms. This also means that 47% of the time, a lowball firm's guidance is above or equal to analyst consensus, yet still ends up being overly cautious at the earnings announcement. Overall, this evidence suggests that the lowball guidance phenomenon we examine in this study is not simply a subset of firms trying to walk down analyst expectations.

not fully understand that the guidance is overly cautious, and therefore, their consensus tends to be sufficiently low for firms' actual earnings to exceed. After four quarters of this pattern, however, analysts adjust their forecasts higher to become more optimistic, and as a result, it becomes more difficult for lowball firms to meet or beat the analyst consensus relative to non-lowball firms. Overall, these results seem to corroborate our results from the previous section examining the termination of lowball guidance.

4.5 Market Returns of Lowball and Non-Lowball Firms

In this subsection, we examine the implication of lowball guidance initiation on a firm's stock performance to test whether issuing lowball guidance is associated with better stock performance. In particular, we compare the market returns of lowball firms to matched non-lowball firms during three one-year periods: the four consecutive quarters of beating guidance by at least $0.05 (period *t*), the one year prior (period *t-1*), and the one year after (period *t+1*). The matched non-lowball firms are those in our cross-sectional analysis described in Section 4.1.2.

Table 7 presents the results. We measure returns as buy-and-hold size-adjusted abnormal returns.[17] In Panel A, we use annual windows. The mean return during period *t-1* and *t+1* is not significantly different between lowball and non-lowball firms. In contrast, during period *t*, the mean return for lowball firms (28.1 percent) is significantly greater than the mean return for non-lowball firms (−1.6 percent) at the 0.01 level. The results suggest that lowball firms outperform non-lowball firms only during the first four quarters of providing lowball guidance, but not before and after that period. To further probe this result, we repeat this analysis using quarterly returns shown in Panel B. As before, the returns in periods *t-1* and *t+1* are all not significantly different, while they are higher for lowball firms compared to non-lowball firms in all but one of

[17] Results and inferences are similar when we use raw returns.

the four quarters during period *t* (unreported p-value=0.11 for Quarter 2, the only insignificant quarter in period *t*).

This univariate comparison, however, does not account for the earnings news released during the quarter, which may be driving the differences in stock performance. To mitigate this concern, we regress the quarterly buy-and-hold abnormal returns on an indicator of lowball firms while controlling for the earnings news throughout the quarter (*ENEWS_QTR*), calculated as the actual earnings minus the mean analyst earnings forecast at the beginning of the quarter, scaled by the firm's stock price at the beginning of the quarter. Panel C reports the results. As expected, the coefficient on *ENEWS_QTR* is significantly positive in most quarters, suggesting that indeed the return differentials are partially explained by differential amount of earnings news during the quarter. More importantly, we continue to find a significantly positive coefficient on the *Lowball* indicator in all but one quarter in period *t*, but not in period *t-1* or *t+1*. These results suggest that, the higher stock outperformance by lowball firms within the first year of lowball initiation is not just driven by their better earnings performance, as the unexpected growth explanation implies, but is also consistent with the market appeasement explanation that the market reacts positively to the issuance of lowball guidance in the first few quarters. Overall, the results in Table 7 indicate that there is a temporary stock outperformance to providing lowball guidance.

4.6 Robustness Tests

As discussed in Section 3, our empirical definition of lowball guidance is based on our readings of many business press articles about lowballing. Our choice of a $0.05 earnings-per-share beat relative to guidance for four consecutive quarters resulted in the identification of 329 firms or 11.1 percent of our sample firms as lowball firms at some point during our sample period. Ample empirical evidence also supports the use of $0.05 rather than, say, $0.06 due to

market participants' tendencies for rounding EPS expectations to nickel increments (Herrmann and Thomas 2005; Bamber et al. 2010; Cheong and Thomas (2011); Dechow and You 2012). As a robustness check, we repeated our analyses using a $0.06 EPS hurdle to beat for at least four consecutive quarters. Increasing the hurdle by one cent results in 253 being identified as lowball firms.

Another design choice we made was using the midpoint of firms' guidance range to measure an EPS beat. However, Ciconte et al. (2011) show that the upper bound rather than the midpoint is more likely to represent managers' true expectations in recent times. Therefore, we also repeat our analyses using the upper bound to measure an EPS beat. Using the upper bound results in 199 firms being identified as a lowball firm.

Despite the reduced number of lowball firms from using a $0.06 EPS beat hurdle or the upper bound of guidance to measure a $0.05 EPS beat, our inferences from Sections 4, 5, and 6 remain; namely, lowball guidance is consistent with the unexpected growth and market appeasement explanations.

Finally, we conducted one-to-one matches when matching control firms (non-lowball firms) to lowball firms in our main tests. As a robustness check, we also conducted two-to-one matches, with and without replacement. We find that the results are similar to or slightly stronger than those presented in Table 3, Panel B and Table 4.

5. Conclusion

We conduct the first large-sample study to examine lowball guidance, the practice of firm managers issuing overly cautious guidance that is subsequently exceeded by a large margin at the earnings announcements. This practice has been the subject of debates among investors, analysts, and the media, while based only on anecdotes of a few high-profile firms. We develop an

intuitive empirical definition to identify and examine this practice within a broad sample of firms. We document the prevalence of this practice, and find evidence consistent with two drivers of lowballing: firms' unexpectedly high growth and firms' attempt to appease sell-side analysts and institutional investors. However, we find that the capital market implications of lowball guidance are short-lived: the likelihood of meeting and beating analyst consensus and the stock returns improve only in the first four quarters after the initiation of lowball guidance, but the benefits disappear after four quarters. Therefore, providing overly cautious guidance may appeal to certain investors, but it does not seem a sustainable practice. Indeed most lowball firms terminate this practice within two years. The findings of our study inform firm managers of the pros and cons of such a practice and alerts capital market participants of the ephemeral nature of lowball guidance.

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Appendix: Variable Definitions

Variable	Definition
SALEGR	Seasonal growth in net sales (COMPUSTAT SALEQ) averaged over the four quarters of period *t-1*, period *t*, or period *t+1*.
EARNGR	Seasonal growth in operating earnings (COMPUSTAT IBQ) averaged over the four quarters of period *t-1*, period *t*, or period *t+1*.
EARNVOL	Standard deviation of quarterly reported earnings during the prior five years, averaged over the four quarters of period *t-1*, period *t*, or period *t+1*.
ANALYSTCOV	The natural log of one plus the number of unique analysts who issued an EPS forecast for the firm during the fiscal quarter averaged over the four quarters of period *t-1*, period *t*, or period *t+1*.
PIH	The percentage of common shares outstanding held by institutional investors as of the end of the latest calendar quarter averaged over the four quarters of period *t-1*, period *t*, or period *t+1*.
PIH_TRA	The percentage of common shares outstanding held by transient institutional investors as of the end of the latest calendar quarter averaged over the four quarters of period *t-1*, period *t*, or period *t+1*. We follow Bushee and Noe (2000) and Bushee (2001) to partition the ownership by institutional investors into three types: transient, dedicated, and quasi-indexer.
PIH_DED	The percentage of common shares outstanding held by dedicated institutional investors as of the end of the latest calendar quarter averaged over the four quarters of period *t-1*, period *t*, or period *t+1*. We follow Bushee and Noe (2000) and Bushee (2001) to partition the ownership by institutional investors into three types: transient, dedicated, and quasi-indexer.
PIH_QIX	The percentage of common shares outstanding held by quasi-indexer institutional investors as of the end of the latest calendar quarter averaged over the four quarters of period *t-1*, period *t*, or period *t+1*. We follow Bushee and Noe (2000) and Bushee (2001) to partition the ownership by institutional investors into three types: transient, dedicated, and quasi-indexer.
SIZE	The natural log of the market cap (Compustat PRCCQ*CSHOQ) averaged over the four quarters of period *t-1*, period *t*, or period *t+1*.
ROA	Return on average assets averaged over the four quarters of period *t-1*, period *t*, or period *t+1*. Return on average assets equals the income before extraordinary items (Compustat IBQ) divided by the average total assets (Compustat ATQ) at the beginning and the end of the quarter.
LEVERAGE	Debt (Compustat DLCQ+DLTTQ) to equity (Compustat CEQQ) ratio averaged over the four quarters of period *t-1*, period *t*, or period *t+1*.
BTM	Book (Compustat CEQQ) to market (Compustat PRCCQ*CSHOQ) ratio averaged over the four quarters of period *t-1*, period *t*, or period *t+1*. We set its value to zero when negative.
SEO	Seasoned equity offering indicator averaged over the four quarters of period *t-1*, period *t*, or period *t+1*. Seasoned equity offering indicator is set to one when proceeds from the sale of common and preferred stock (Compustat SSTKQ) in current and the subsequent three quarters is greater than 10 percent of beginning total assets, and set to zero otherwise.

Appendix: Variable Definitions (continued)

Variable	Definition
M&A	Merger and acquisition indicator averaged over the four quarters of period t-1, period t, or period t+1. Merger and acquisition indicator is set to one if the amount of acquisitions (Compustat AQCQ) in current and the subsequent three quarters is greater than 10 percent of beginning total assets, and set to zero otherwise.
RDINTENSE	Research and development intensity averaged over the four quarters of period *t* or period *t+1*. Research and development intensity equals research and development expense (Compustat XRDQ) during the fiscal quarter divided by the average total assets (Compustat ATQ) at the beginning and the end of the quarter.
IFIRST_GUIDE	Indicator variable set to 1 if a firm is providing guidance for the first time in the first quarter of the four quarters of period *t* or period *t+1*.
FIRMAGE	The natural log of the number of years since the firm first appears in CRSP averaged over the four quarters of period *t* or period *t+1*.
FQ4	Indicator variable set to 1 if the last quarter in period *t* is the fiscal fourth quarter.
LOSS	Indicator of a loss (Compustat NIQ<0) averaged over the four quarters of period *t* or period *t+1*.
RET	Cumulative return during the fiscal quarter, averaged over the four quarters of period *t* or period *t+1*.
VOLATILITY	Standard deviation of daily returns over the fiscal quarter, averaged over the four quarters of period *t* or period *t+1*.
TURNOVER	The natural log of the average daily US$ trading volume during the fiscal quarter divided by the market cap averaged over the four quarters of period *t* or period *t+1*.
MEANREC	Mean recommendation among analysts for a given firm immediately prior to an earnings announcement averaged over the four quarters of period *t* or period *t+1*. The scale of mean consensus recommendation from IBES is as follows: 1-Strong Buy, 2-Buy, 3-Hold, 4-Underperform. 5-Sell. We take the negative value so that lower (higher) value indicates more negative (positive) opinion.
OPTIMISM	Analyst forecast optimism averaged over the four quarters of period *t* or period *t+1*. Forecast optimism is measured as the mean earnings forecast immediately before an earnings announcement minus actual earnings, scaled by the firm's stock price at the end of the fiscal quarter.
DISPERSION	Standard deviation of analyst forecasts measured immediately before an earnings announcement, averaged over the four quarters of period *t* or period *t+1*.
ABSERROR	The absolute value of the difference between the analyst mean earnings forecast immediately before an earnings announcement and actual earnings, scaled by the firm's stock price at the end of the fiscal quarter, averaged over the four quarters of period *t* or period *t+1*.
ENEWS_QTR	The total amount of earnings news released during the fiscal quarter. It is calculated as the actual earnings minus the analyst mean earnings forecast at the beginning of the fiscal quarter, scaled by the firm's stock price at the beginning of the fiscal quarter.

Figure 1: Number of *New* Lowball Firms Identified Each Quarter

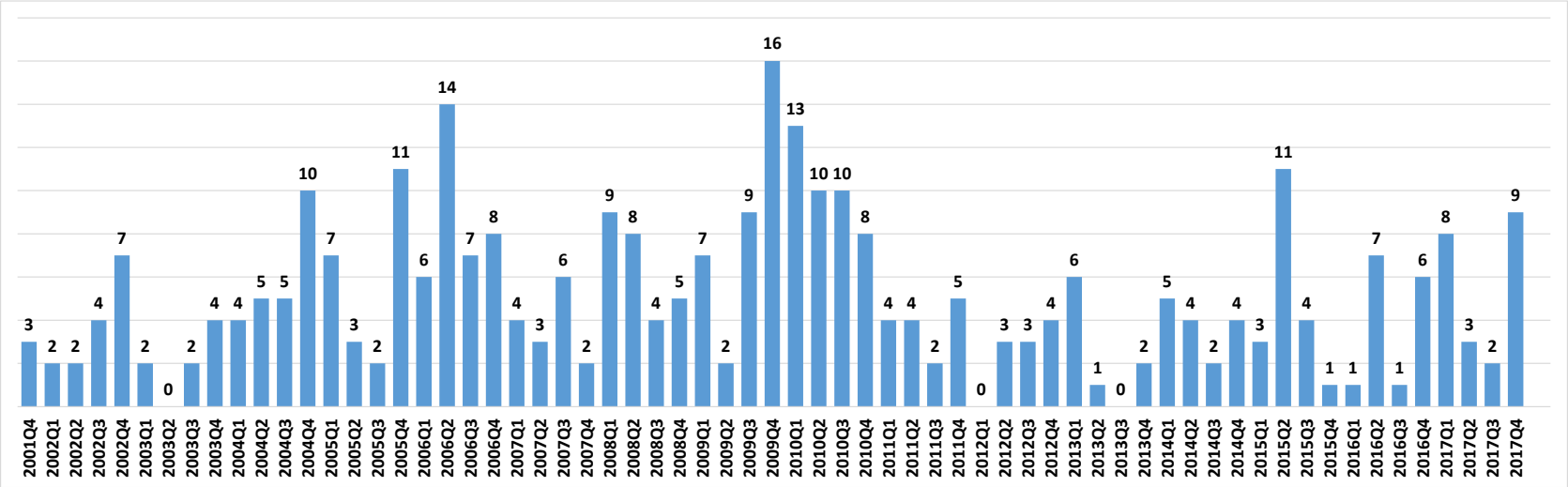

Figure 2: Number of *All* Lowball Firms (New and Continuing) Each Quarter

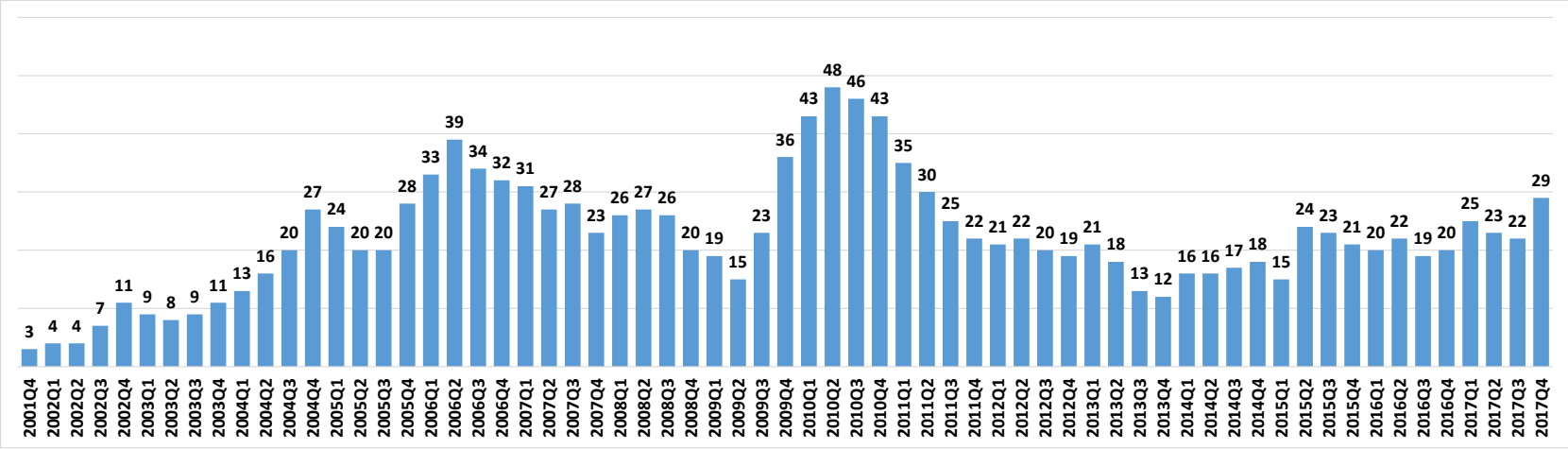

Figure 1 illustrates the number of newly-identified lowball firms in each quarter, with a median of four and a high of 16 in 2009Q4. Figure 2 shows the cumulative number of lowball firms each quarter, with the median of 21 and the high of 48 in 2010Q2.

Table 1: Sample Composition

	Number of guidance	Number of Unique Firms
All point and range quarterly EPS guidance in IBES from 2001Q1 to 2017Q4	58,378	3,938
Eliminate guidance issued after the end of the fiscal quarter	(7,773)	(678)
Eliminate guidance issued before the start of the fiscal quarter	(4,150)	(57)
If multiple guidance issued in the fiscal quarter, retain the last one	(5,340)	(0)
Require non-missing data from IBES, Compustat, and CRSP	(1,452)	(200)
Eliminate firms with guidance or actual EPS greater than $20.00 ever	(98)	(6)
Subtotal of management guidance and unique firms	39,565	2,997
Retain all firm-quarters for firms that provided at least one EPS guidance	128,063	2,997
Require four consecutive firm-quarters with non-missing data, starting after 2001Q1	(9,964)	(44)
Total number of firm-quarters and unique firms used to identify potential *Lowball* guidance firms	118,099	2,953

Table 1 outlines our sample selection procedure. We obtain quarterly earnings-per-share (EPS) guidance data from the Thomson Reuters IBES Guidance Detail file.

Table 2: Time-Series Determinants of Lowball Guidance

Panel A: Descriptive Statistics of Variables Used in Time-Series Regressions

Variable	N	Mean	Min	25th Pctl	Median	75th Pctl	Max
SALEGR	602	0.156	−0.314	0.017	0.104	0.241	1.202
EARNGR	602	0.153	−2.829	−0.320	0.138	0.603	3.679
EARNVOL	602	0.235	0.026	0.094	0.159	0.274	1.835
ANALYSTCOV (not logged)	602	12.126	1.250	6.250	10.000	17.000	35.500
ANALYSTCOV	602	2.400	0.811	1.981	2.398	2.890	3.597
PIH	602	0.748	0.000	0.661	0.829	0.920	1.000
PIH_TRA	602	0.187	0.000	0.112	0.175	0.249	0.483
PIH_DED	602	0.038	0.000	0.000	0.011	0.063	0.222
PIH_QIX	602	0.496	0.000	0.373	0.527	0.638	0.924
SIZE	602	7.551	4.523	6.633	7.384	8.436	11.318
ROA	602	0.015	−0.074	0.006	0.016	0.028	0.081
LEVERAGE	602	0.543	−7.679	0.028	0.346	0.764	8.333
BTM	602	0.462	0.000	0.239	0.398	0.596	1.750
SEO	602	0.039	0.000	0.000	0.000	0.000	1.000
M&A	602	0.120	0.000	0.000	0.000	0.000	1.000
RDINTENSE	602	0.012	0.000	0.000	0.004	0.022	0.061
IFIRST_GUIDE	602	0.023	0.000	0.000	0.000	0.000	1.000

Table 2: Time-Series Determinants of Lowball Guidance (Cont'd)

Panel B: Time-Series Logistic Regressions

	Unexp.. Growth	Mkt Appease	Dependent variable = *Lowball* (1)	(2)
SALEGR	+		1.108 ***	1.001 **
			(2.62)	(2.31)
EARNGR	+		0.120 **	0.123 **
			(1.92)	(1.96)
EARNVOL	+		0.452 ***	0.443 ***
			(3.26)	(3.10)
ANALYSTCOV		+	−0.032	−0.105
			(−0.33)	(−1.00)
PIH		+	0.218 *	
			(1.34)	
PIH_TRA		+		1.435 ***
				(2.45)
PIH_DED		–		−1.401 *
				(−1.35)
PIH_QIX		–		−0.198
				(−0.82)
SIZE			0.073 *	0.121 **
			(1.72)	(2.51)
ROA			8.971 ***	9.102 ***
			(3.27)	(3.16)
LEVERAGE			0.021	0.024
			(0.54)	(0.58)
BTM			0.173	0.217
			(0.91)	(1.12)
SEO			−0.537	−0.551
			(−0.90)	(−0.95)
M&A			−0.929 ***	−0.939 ***
			(−2.91)	(−2.92)
RDINTENSE			4.282	4.575
			(1.41)	(1.46)
IFIRST_GUIDE			−0.793	−0.945
			(−1.26)	(−1.37)
Intercept			−1.148 ***	−1.304 ***
			(−3.38)	(−3.78)
FF 12 Industry FE			Yes	Yes
Clustered by firm			Yes	Yes
N			602	602
Pseudo-R^2			0.044	0.047

Table 2 Panel A presents the descriptive statistics of the variables in Equation (1). The sample size is 602 firm-periods, consisting of 301 lowball firms measured during periods *t-1* and *t*. Panel B reports the results from the time-series logistic regressions of Equation (1) with the institutional ownership aggregated (*PIH*) in Column (1) and partitioned into transient (*PIH_TRA*), dedicated (*PIH_DED*), and quasi-indexer (*PIH_QIX*) in Column (2). We report *t*-statistics in parentheses and cluster the standard errors by firm. The tests of significance are one-tailed for variables with directional predictions and two-tailed otherwise. The appendix includes detailed definitions for all variables. All continuous variables are winsorized at the 1st and 99th percentiles to mitigate the influence of outliers, with the exception of earnings growth (*EARNGR*), which is winsorized at the 5th and 95th percentiles due to a small denominator problem. *, **, *** indicate significant difference from zero at the 0.10, 0.05, and 0.01 levels, respectively.

Table 3: Cross-Sectional Determinants of Lowball Guidance

Panel A: Descriptive Statistics of Variables Used in Cross-Sectional Regressions

Variable	N	Mean	Min	25th Pctl	Median	75th Pctl	Max
SALEGR	602	0.155	−0.421	0.012	0.102	0.246	1.198
EARNGR	602	−0.014	−4.395	−0.470	0.113	0.552	3.469
EARNVOL	602	0.247	0.025	0.084	0.143	0.254	2.278
ANALYSTCOV (not logged)	602	11.990	0.000	6.000	10.000	16.500	45.750
ANALYSTCOV	602	2.369	0.693	1.946	2.398	2.862	3.651
PIH	602	0.734	0.000	0.648	0.815	0.909	1.000
PIH_TRA	602	0.181	0.000	0.109	0.173	0.247	0.457
PIH_DED	602	0.036	0.000	0.000	0.006	0.061	0.231
PIH_QIX	602	0.487	0.000	0.374	0.511	0.634	0.890
SIZE	602	7.574	4.602	6.676	7.429	8.471	11.318
ROA	602	0.013	−0.065	0.003	0.015	0.025	0.084
LEVERAGE	602	0.692	−5.079	0.033	0.355	0.871	10.735
BTM	602	0.458	0.000	0.244	0.399	0.587	1.666
SEO	602	0.038	0.000	0.000	0.000	0.000	1.000
M&A	602	0.114	0.000	0.000	0.000	0.000	1.000
RDINTENSE	602	0.011	0.000	0.000	0.004	0.018	0.061
IFIRST_GUIDE	602	0.012	0.000	0.000	0.000	0.000	1.000
FIRMAGE	602	2.756	0.693	2.225	2.788	3.332	4.516
FQ4	602	0.304	0.000	0.000	0.000	1.000	1.000

Table 3: Cross−Sectional Determinants of Lowball Guidance (Cont'd)

Panel B: Cross-Sectional Regressions

	Unexp.. Growth	Mkt Appease	Dependent variable = *Lowball* (1)	(2)
SALEGR	+		0.696 **	0.641 *
			(1.76)	(1.60)
EARNGR	+		0.147 ***	0.152 ***
			(2.49)	(2.58)
EARNVOL	+		0.436 *	0.431 *
			(1.63)	(1.62)
ANALYSTCOV		+	0.337 *	0.282
			(1.52)	(1.27)
PIH		+	0.731 **	
			(1.81)	
PIH_TRA		+		2.512 ***
				(2.58)
PIH_DED		–		1.069
				(0.55)
PIH_QIX		–		0.090
				(0.18)
SIZE			−0.066	−0.029
			(−0.57)	(−0.24)
ROA			23.092 ***	24.503 ***
			(4.26)	(4.35)
LEVERAGE			−0.028	−0.031
			(−0.48)	(−0.54)
BTM			0.704 **	0.798 **
			(1.97)	(2.19)
SEO			−0.487	−0.629
			(−0.72)	(−0.91)
M&A			−0.993 ***	−1.002 **
			(−2.59)	(−2.55)
RDINTENSE			19.517 **	19.676 **
			(2.20)	(2.20)
IFIRST_GUIDE			1.054	0.980
			(1.46)	(1.33)
FIRMAGE			−0.106	−0.079
			(−0.76)	(−0.55)
FQ4			0.405 **	0.404 **
			(2.06)	(2.06)
Intercept			−1.563 **	−1.833 **
			(−1.97)	(−2.24)
FF 12 Industry FE			Yes	Yes
Clustered by firm			Yes	Yes
N			602	602
Pseudo-R^2			0.086	0.092

Table 3: Cross-Sectional Determinants of Lowball Guidance (Cont'd)

Table 3 Panel A presents the descriptive statistics of the variables in Equation (2). The sample size is 602 firm-periods, consisting of 301 lowball firms and 301 control (non-lowball) firms, each measured during period *t*. Panel B reports the results from the cross-sectional regressions of Equation (2) with the institutional ownership aggregated (*PIH*) in Column (1) and separated into transient (*PIH_TRA*), dedicated (*PIH_DED*), and quasi-indexer (*PIH_QIX*) in Column (2). We report *t*-statistics in parentheses and cluster the standard errors by firm. The tests of significance are one-tailed for variables with directional predictions and two-tailed otherwise. The appendix includes detailed definitions for all variables. All continuous variables are winsorized at the 1st and 99th percentiles to mitigate the influence of outliers, with the exception of earnings growth (*EARNGR*), which is winsorized at the 5th and 95th percentiles due to a small denominator problem. *, **, *** indicate significant difference from zero at the 0.10, 0.05, and 0.01 levels, respectively.

Table 4: Market Implications of Lowball Guidance

Panel A: Descriptive Statistics of Variables Used in the Regressions of Market Implications

Variable	N	Mean	Min	25th Pctl	Median	75th Pctl	Max
PIH	1,012	0.744	0.000	0.655	0.824	0.915	1.000
PIH_TRA	1,012	0.179	0.000	0.108	0.169	0.245	0.456
PIH_DED	1,012	0.030	0.000	0.000	0.001	0.051	0.197
PIH_QIX	1,012	0.508	0.000	0.420	0.531	0.649	0.895
ANALYSTCOV (not logged)	1,012	11.661	0.750	6.000	10.000	15.750	35.500
ANALYSTCOV	1,012	2.355	0.560	1.946	2.398	2.818	3.597
MEANREC	996	−2.304	−3.393	−2.591	−2.285	−2.001	−1.250
OPTIMISM	988	−0.002	−0.052	−0.002	−0.001	0.000	0.041
DISPERSION	964	0.031	0.000	0.010	0.018	0.030	0.355
ABSERROR	988	0.008	0.000	0.001	0.002	0.004	0.321
SALEGR	1,012	0.141	−0.421	0.022	0.102	0.223	1.049
SIZE	1,012	7.570	4.596	6.697	7.515	8.387	11.320
ROA	1,012	0.014	−0.073	0.005	0.015	0.026	0.078
LEVERAGE	1,012	0.739	−3.813	0.041	0.355	0.845	11.213
BTM	1,012	0.466	0.000	0.253	0.406	0.605	1.689
FIRMAGE	1,012	2.814	0.693	2.303	2.803	3.438	4.527
RDINTENSE	1,012	0.010	0.000	0.000	0.002	0.016	0.062
LOSS	1,012	0.0158	0.000	0.000	0.000	0.250	1.000
RET	1,012	0.031	−0.201	−0.010	0.030	0.078	0.216
VOLATILITY	1,012	0.024	0.010	0.016	0.022	0.028	0.064
TURNOVER	1,012	−4.705	−6.403	−5.102	−4.715	−4.297	−3.191

Table 4: Market Implications of Lowball Guidance (Cont'd)

Panel B: Subsequent Institutional Ownership

	Mkt Appease	Dependent Variables			
		PIH	*PIH_TRA*	*PIH_DED*	*PIH_QIX*
		(1)	(2)	(3)	(4)
LOWBALL		0.020	0.004	0.005	0.008
		(0.94)	(0.50)	(1.10)	(0.46)
POST		−0.007	−0.010 **	−0.004 **	0.007
		(−0.71)	(−2.11)	(−2.17)	(0.77)
*LOWBALL*POST*	+	0.010	0.021 ***	−0.004	−0.003
		(0.79)	(3.05)	(−1.40)	(−0.25)
SALEGR		−0.033	0.019	−0.020 **	−0.022
		(−0.68)	(1.11)	(−2.46)	(−0.59)
ANALYSTCOV		0.004	0.002	−0.008 *	0.005
		(0.15)	(0.25)	(−1.84)	(0.24)
SIZE		−0.035 **	−0.020 ***	0.004 *	−0.022 *
		(−2.48)	(−3.96)	(1.85)	(−1.96)
ROA		−0.609	−0.387 *	0.042	−0.185
		(−0.97)	(−1.71)	(0.26)	(−0.37)
LEVERAGE		0.004	0.000	0.003 *	0.002
		(0.63)	(0.02)	(1.95)	(0.31)
BTM		−0.052	−0.028 *	−0.019 **	0.006
		(−1.15)	(−1.81)	(−2.51)	(0.18)
RDINTENSE		0.826	0.247	−0.101	0.669
		(0.75)	(0.62)	(−0.69)	(0.81)
FIRMAGE		0.028 *	−0.002	0.002	0.029 **
		(1.87)	(−0.35)	(0.71)	(2.34)
LOSS		−0.077	−0.019	0.022 **	−0.089 **
		(−1.33)	(−0.99)	(2.19)	(−1.97)
RET		−0.019	0.156 ***	−0.036 *	−0.104
		(−0.17)	(3.30)	(−1.94)	(−1.20)
VOLATILITY		−5.905 ***	−0.516	−0.709 ***	−4.401 ***
		(−5.15)	(−1.34)	(−3.68)	(−4.63)
TURNOVER		0.124 ***	0.066 ***	−0.000	0.067 ***
		(5.93)	(8.77)	(−0.05)	(4.15)
Intercept		1.711 ***	0.664 ***	0.041	1.032 ***
		(10.40)	(11.03)	(1.50)	(7.84)
FF 12 Industry FE		Yes	Yes	Yes	Yes
Clustered by firm		Yes	Yes	Yes	Yes
N		1,012	1,012	1,012	1,012
R^2		0.166	0.257	0.107	0.131

Table 4: Market Implications of Lowball Guidance (Cont'd)

Panel C: Subsequent Analyst Coverage, Recommendation, and Forecast Properties

		Dependent Variables					
	Mkt	*ANALYSTCOV*		*MEANREC*	*ANAOPT*	*DISPERSE*	*ABSERROR*
	Appease	(1)	Pred	(2)	(3)	(4)	(5)
LOWBALL		0.008		−0.009	−0.004 ***	−0.001	−0.000
		(0.22)		(−0.24)	(−5.54)	(−0.44)	(−0.01)
POST		0.009		0.008	−0.000	0.004 ***	0.002
		(0.66)		(0.36)	(−0.53)	(2.73)	(1.02)
*LOWBALL*POST*	+	−0.049 **	+/−	0.037	0.002 **	−0.004	−0.002
		(−2.39)		(1.18)	(2.46)	(−1.48)	(−1.21)
SALEGR		−0.051		0.489 ***	0.001	0.007	0.007
		(−0.83)		(6.98)	(0.47)	(0.66)	(0.76)
PIH		0.010		0.041	0.003 *	−0.012	−0.006
		(0.15)		(0.58)	(1.75)	(−1.50)	(−0.99)
SIZE		0.355 ***		−0.016	0.000	−0.004 *	−0.003 *
		(22.26)		(−0.97)	(1.41)	(−1.67)	(−1.96)
ROA		−2.832 **		0.947	−0.013	−0.177	−0.101
		(−2.49)		(0.73)	(−0.48)	(−1.41)	(−0.89)
LEVERAGE		−0.002		0.003	−0.000	0.000	0.000
		(−0.18)		(0.32)	(−0.83)	(0.18)	(0.04)
BTM		0.110		−0.159 **	−0.005 **	−0.009	0.002
		(1.46)		(−2.06)	(−2.45)	(−0.71)	(0.28)
RDINTENSE		3.875 **		−4.427 ***	−0.091 **	−0.361 *	−0.060
		(2.51)		(−2.88)	(−2.24)	(−1.69)	(−0.40)
FIRMAGE		−0.101 ***		0.009	0.000	0.011 ***	0.003 **
		(−3.70)		(0.30)	(0.73)	(3.07)	(2.08)
LOSS		0.034		−0.055	−0.000	0.035 ***	0.020 **
		(0.37)		(−0.59)	(−0.10)	(3.16)	(2.20)
RET		0.150		0.094	−0.011 **	−0.038	−0.027
		(0.77)		(0.45)	(−2.19)	(−1.55)	(−1.35)
VOLATILITY		−3.411		2.336	0.024	0.044	0.364
		(−1.58)		(1.14)	(0.47)	(0.19)	(1.43)
TURNOVER		0.296 ***		−0.043	−0.000	0.016 ***	0.001
		(9.32)		(−1.36)	(−0.23)	(3.72)	(0.20)
Intercept		1.454 ***		−2.534 ***	−0.004	0.124 ***	0.021
		(5.65)		(−8.92)	(−0.67)	(3.24)	(0.60)
FF 12 Industry FE		Yes		Yes	Yes	Yes	Yes
Clustered by firm		Yes		Yes	Yes	Yes	Yes
N		1,012		996	988	964	988
R^2		0.638		0.138	0.123	0.245	0.207

Table 4 Panel A presents the descriptive statistics of the variables used in the analysis of the market implications of lowball guidance. The sample size is 1,102 firm-periods, consisting of 301 lowball firms, 301 control (non-lowball) firms, and each measured for periods *t* and *t+1*. Panel B presents the results from estimating regression Equation (3). Panel C shows the results for analyst coverage in Column (1), stock recommendations in Column (2), and earnings forecast properties in Columns (3) to (5). We report *t*-statistics in parentheses and cluster the standard errors by firm. The tests of significance are one-tailed for variables with directional predictions and two-tailed otherwise. The appendix includes detailed definitions for all variables. All continuous variables are winsorized at the 1st and 99th percentiles to mitigate the influence of outliers. *, **, *** indicate significant difference from zero at the 0.10, 0.05, and 0.01 levels, respectively.

Table 5: Termination of Lowball Guidance

Panel A: Descriptive Statistics of Variables Used in Termination Regressions

Variable	N	Mean	Min	25th Pctl	Median	75th Pctl	Max
SALEGR	586	0.160	−0.438	0.015	0.109	0.254	1.518
EARNGR	586	0.057	−2.291	−0.295	0.099	0.494	2.132
EARNVOL	586	0.275	0.035	0.127	0.201	0.322	1.848
ANALYSTCOV (not logged)	586	12.440	0.000	6.000	11.000	17.000	55.000
ANALYSTCOV	586	2.424	0.693	1.946	2.485	2.890	3.526
PIH	586	0.749	0.000	0.660	0.834	0.933	1.000
PIH_TRA	586	0.191	0.000	0.113	0.176	0.263	0.503
PIH_DED	586	0.028	0.000	0.000	0.000	0.052	0.215
PIH_QIX	586	0.502	0.000	0.394	0.539	0.654	0.935
SIZE	586	7.719	4.299	6.774	7.658	8.741	12.023
ROA	586	0.019	−0.099	0.007	0.018	0.035	0.114
LEVERAGE	586	0.720	−6.971	0.002	0.276	0.782	16.820
BTM	586	0.447	0.000	0.206	0.358	0.598	1.926
SEO	586	0.039	0.000	0.000	0.000	0.000	1.000
M&A	586	0.137	0.000	0.000	0.000	0.000	1.000
RDINTENSE	586	0.012	0.000	0.000	0.000	0.018	0.069

Table 5: Termination of Lowball Guidance (Cont'd)

Panel B: Determinants of Termination of Lowball Guidance

	Unexp. Growth	Mkt Appease	Dependent Variables			
			STOP	*NOGUIDE*	*DISAPPOINT*	*SMALLBEAT*
			(1)	(2)	(3)	(4)
SALEGR	−		−0.646 ***	0.030	−0.825 **	−0.847 **
			(−2.74)	(0.04)	(−1.74)	(−2.17)
EARNGR	−		−0.263 ***	−0.485 **	−0.295 **	−0.232 *
			(−2.78)	(−1.68)	(−1.81)	(−1.35)
EARNVOL	−		0.029	−0.049	0.159	−0.240
			(0.32)	(−0.18)	(1.08)	(−0.67)
ANALYSTCOV		−	0.125	−0.787 **	0.511 ***	0.117
			(1.40)	(−2.13)	(2.72)	(0.76)
PIH_TRA		−	0.235	1.737 *	−0.599	0.713
			(0.53)	(1.69)	(−0.70)	(0.78)
PIH_DED			−0.512	−0.226	1.029	−0.571
			(−0.56)	(−0.12)	(0.50)	(−0.32)
PIH_QIX			0.104	−0.542	0.554 *	−0.267
			(0.64)	(−1.11)	(1.74)	(−0.78)
SIZE			0.016	0.304 *	−0.153 *	0.049
			(0.38)	(1.86)	(−1.77)	(0.74)
ROA			−1.071	−1.688	0.937	3.667
			(−0.43)	(−0.26)	(0.19)	(0.85)
LEVERAGE			−0.024	0.020	−0.182 **	−0.051
			(−1.20)	(0.72)	(−2.44)	(−1.15)
BTM			0.143	−0.106	0.414	0.469 *
			(1.01)	(−0.33)	(1.50)	(1.85)
SEO			0.451	1.468 *	0.482 ***	−0.309
			(1.47)	(1.77)	(2.85)	(−0.47)
M&A			0.088	1.055 **	0.021	−0.021
			(0.56)	(2.07)	(0.08)	(−0.08)
RDINTENSE			−4.416	−5.550	−8.915	−0.093
			(−1.21)	(−0.52)	(−1.26)	(−0.01)
Intercept			−0.411 *	−0.684	−0.291	−0.540
			(−1.78)	(−0.98)	(−0.54)	(−1.33)
FF 12 Industry FE			Yes	Yes	Yes	Yes
Clustered by firm			Yes	Yes	Yes	Yes
N			586	148	234	204
Pseudo-R^2			0.023	0.063	0.040	0.021

Table 5 Panel A presents the descriptive statistics of the variables used in Equation (4). The sample size is 586 firm-periods, consisting of 293 lowball firms that stopped lowballing, measured for quarter *t* and *t-1*. Panel B presents the regression results of Equation (4), with all cases of termination of lowball guidance in Column (1) and the three subsamples in Columns (2) to (4). We report *t*-statistics in parentheses and cluster the standard errors by firm. The tests of significance are one-tailed for variables with directional predictions and two-tailed otherwise. The appendix includes detailed definitions for all variables. All continuous variables are winsorized at the 1st and 99th percentiles to mitigate the influence of outliers, with the exception of earnings growth (*EARNGR*), which is winsorized at the 5th and 95th percentiles due to a small denominator problem. *, **, *** indicate significant difference from zero at the 0.10, 0.05, and 0.01 levels, respectively.

Table 6: Likelihood of Meeting or Beating Analyst Consensus Forecast

		Set t-1(t) as the pre(post)period		Set t(t+1) as the pre(post)period	
		Dependent Variables		Dependent Variables	
		MBE%	*BEAT%*	*MBE%*	*BEAT%*
	Pred.	(1)	(2)	(3)	(4)
LOWBALL		0.064 ***	0.117 ***	0.223 ***	0.333 ***
		(3.20)	(5.32)	(12.47)	(15.66)
POST		0.004	0.019	−0.000	0.004
		(0.19)	(0.89)	(−0.01)	(0.19)
*LOWBALL*POST*	+/−	0.155 ***	0.215 ***	−0.138 ***	−0.169 ***
		(6.82)	(8.18)	(−5.95)	(−6.33)
SALEGR		0.101 ***	0.116 ***	0.089 ***	0.076 **
		(3.83)	(3.75)	(2.82)	(2.06)
ANALYSTCOV		0.067 ***	0.030	0.050 **	0.009
		(3.53)	(1.49)	(2.11)	(0.37)
SIZE		0.005	0.020 **	0.019 *	0.027 **
		(0.59)	(2.01)	(1.78)	(2.27)
ROA		0.207	0.277	−0.307	−0.100
		(0.40)	(0.51)	(−0.47)	(−0.14)
LEVERAGE		0.002	0.001	0.003	0.003
		(0.67)	(0.18)	(0.69)	(0.55)
BTM		−0.056 **	−0.055 **	−0.025	−0.016
		(−2.07)	(−1.99)	(−0.63)	(−0.41)
FIRMAGE		−0.026 **	−0.034 ***	−0.025 **	−0.032 **
		(−2.52)	(−2.97)	(−2.10)	(−2.39)
LOSS		−0.146 ***	−0.104 **	−0.162 ***	−0.121 **
		(−3.55)	(−2.43)	(−3.21)	(−2.21)
Intercept		0.651 ***	0.496 ***	0.544 ***	0.483 ***
		(10.81)	(7.79)	(7.74)	(6.08)
FF 12 Industry FE		Yes	Yes	Yes	Yes
Clustered by firm		Yes	Yes	Yes	Yes
N		1,204	1,204	1,012	1,012
R^2		0.297	0.336	0.292	0.314

Table 6 presents the regression results of Equation (5), where the dependent variables are the percentage of quarters in which a firms meets or beats (*MBE%*) or strictly beats (*BEAT%*) analyst consensus forecasts. In Columns (1) and (2), the sample size is 1,204 firm-periods, consisting of 301 lowball firms and 301 control (non-lowball) firms, measured for periods *t* and *t-1*. As in prior analyses, each period consists of four consecutive quarters, with the first quarter of lowballing as the beginning of period t. In Columns (3) and (4), because of the additional data requirement for the four quarters of period *t+1*, the sample size is slightly smaller: 1,102 firm-periods, consisting of 253 lowball firms and 253 control (non-lowball) firms, measured for periods *t* and *t+1*. We report *t*-statistics in parentheses and cluster the standard errors by firm. The tests of significance are one-tailed for variables with directional predictions and two-tailed otherwise. The appendix includes detailed definitions for all variables. All continuous variables are winsorized at the 1st and 99th percentiles to mitigate the influence of outliers. *, **, *** indicate significant difference from zero at the 0.10, 0.05, and 0.01 levels, respectively.

Table 7: Market Returns of Lowball and Non-Lowball Firms

Panel A: Annual Buy-and-Hold Abnormal Returns

	N	Lowball Firms	Non-Lowball Firms	Diff.	
Annual Buy-and-Hold Abnormal Returns					
Period t-1	301	4.7%	6.0%	−1.3%	
Period t	301	28.1%	−1.6%	29.6%	***
Period t+1	253	5.8%	1.8%	4.0%	

Panel B: Quarterly Buy-and-Hold Abnormal Returns

		N	Lowball Firms	Non-Lowball Firms	Diff.	
Quarterly Buy-and-Hold Abnormal Returns						
Period t-1	Quarter -4	301	−0.4%	0.7%	−1.1%	
	Quarter -3	301	2.1%	1.5%	0.6%	
	Quarter -2	301	1.9%	1.8%	0.0%	
	Quarter -1	301	1.3%	1.4%	−0.1%	
Period t	Quarter 0	301	3.3%	0.8%	2.5%	**
	Quarter 1	301	5.1%	−0.5%	5.6%	***
	Quarter 2	301	2.8%	1.0%	1.8%	
	Quarter 3	301	1.8%	−1.1%	2.9%	***
Period t+1	Quarter 4	253	2.1%	1.0%	1.1%	
	Quarter 5	253	0.5%	1.4%	−1.0%	
	Quarter 6	253	−0.6%	−0.3%	−0.3%	
	Quarter 7	253	0.3%	0.8%	−0.5%	

Table 7: Market Returns of Lowball and Non-Lowball Firms (Cont'd)

Panel C: Quarterly Buy-and Hold Abnormal Returns Controlling for Earnings News during the Quarter

Dependent variable: 1-Quarter Buy-and-Hold Abnormal Returns							
		Mkt Appease (*Lowball* Coeff.)	*Lowball*	*ENEWS_QTR*	*Intercept*	N	R^2
Period t-1	Quarter -4	+/−	−0.011	1.337 *	0.009	602	0.020
			(−0.97)	(1.80)	(1.16)		
	Quarter −3	+/−	0.003	1.537 ***	0.019 **	602	0.031
			(0.21)	(3.30)	(2.02)		
	Quarter −2	+/−	0.000	0.635	0.020 **	602	0.009
			(0.04)	(1.18)	(2.45)		
	Quarter −1	+/−	−0.001	1.441 ***	0.019 **	602	0.040
			(−0.07)	(3.65)	(2.19)		
Period t	Quarter 0	+	0.020 **	1.113 **	0.011	602	0.022
			(1.74)	(2.40)	(1.21)		
	Quarter 1	+	0.053 ***	0.325	−0.004	602	0.041
			(4.65)	(0.70)	(−0.45)		
	Quarter 2	+	0.014	0.482	0.012	602	0.008
			(1.22)	(1.10)	(1.46)		
	Quarter 3	+	0.016 *	1.747 ***	−0.005	602	0.066
			(1.41)	(3.95)	(−0.63)		
Period t+1	Quarter 4	+/−	0	0.908 *	0.012	506	0.016
			(0.56)	(1.71)	(1.35)		
	Quarter 5	+/−	−0.015	1.292 **	0.018 **	506	0.033
			(−1.28)	(2.54)	(2.06)		
	Quarter 6	+/−	−0.005	1.015 *	−0.000	506	0.015
			(−0.42)	(1.68)	(−0.01)		
	Quarter 7	+/−	−0.008	0.743 **	0.013	506	0.016
			(−0.75)	(1.99)	(1.50)		

Table 7 Panel A presents the size-adjusted abnormal returns of lowball and non-lowball firms during three one-year periods: the four consecutive quarters of beating guidance by at least $0.05 (period t), the one year prior (period t-1), and the one year after (period t+1). Panel B presents the results from a similar analysis on a quarterly basis. Panel C reports results of OLS regressions where the dependent variable is the quarterly buy-and-hold abnormal returns and the independent variable is an indicator of lowball firms with a control variable of the total amount of earnings news released during the quarter (*ENEWS_QTR*), as defined in the Appendix. The tests of significance are one-tailed for variables with directional predictions and two-tailed otherwise. *, **, *** indicate significant difference from zero at the 0.10, 0.05 and 0.01 levels, respectively.